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**A COST CONTAINMENT CASE
FOR OCCUPATIONAL ILLNESS AND INJURY CASE MANAGEMENT**

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SUMMARY

Problem

In the face of rising occupational injury and illness costs, the United States Public Health Service and other federal and state agencies have begun to seek solutions through cost containment efforts. The success of such endeavors depends on the effectiveness of proposed plans (1) to efficiently manage workers' compensation cases, (2) to contain occupational illness and injury costs in both the short and long term, and (3) to solve the complex problems faced by the occupationally injured or ill worker.

Objectives

The purpose of this review is to provide a description of workers' compensation and to examine the scientific literature on cost containment, case management, prevention, and intervention. Another objective is to formulate and proffer a remedy or process that would be expected to enhance the likelihood of returning the occupationally injured or ill employee to work and to reduce the increasing rate of medical, compensation, and disability costs.

Approach

To provide this review of issues pertinent to workers' compensation, the scientific literature has been examined and summarized under the general categories of workers' compensation, cost containment, case management, prevention, and intervention. A process for managing cases of occupational illness and injury is described.

Results and Conclusions

The history of the Workers' Compensation system in the United States began in 1913 as part of industrial and labor reforms. A disability is deemed industrial if the occupationally related illness or injury resulted from employment. Because of the spiraling costs for medical care, compensation, and disability, cost containment efforts have been created to expeditiously manage each case of occupationally sustained illness and injury. Effective case management involves the coordinated efforts of six key players, especially the attending case managing physician, the care coordinator-claims facilitator, and the line supervisor or employer. The most important role of the attending case managing physician is to provide

high quality medical care and to help the patient set aside the sick or injured role and return to work. The care coordinator-claims facilitator performs the following functions: obtaining appropriate medical care for the worker, monitoring medical services, maintaining ties with the worker and other participants in each case, providing assistance in implementing and monitoring the return-to-work plan, serving as a source of care and claims information, and promptly and accurately filing forms with the Department of Labor, Office of Workers' Compensation Programs. The line supervisor's responsibility lies in the areas of prevention (e.g., safety training and health promotion programs) and intervention. During the healing period, the supervisor or employer monitors the injured or ill worker's well-being and his or her return-to-work plan. Each of these key players is aware that the injured worker might manifest some psychological problems and that such issues as high medical care utilization and malingering might have to be resolved. Three types of interventions are discussed: goal-oriented, short-term psychotherapy; settlement awards; and a case management process. To help solve the psychological problems faced by many injured or ill workers, an important adjunct to the medical care received is that of mental health treatment. Results of several studies point up that even one therapy session has proven to be effective in helping the patient and reducing overall medical and disability costs. Receiving a cash settlement has been reported to be correlated with no improvement in the patient's feelings of well-being and no improvement in employment status. The final type of intervention is that of the Occupational Illness and Injury Contingency Management Process (OPTICOMAP), a process that incorporates each element of cost containment and case management for each of the key players described in this review paper.

Recommendations

The implementation of OPTICOMAP or a similar process is expected not only to reduce the high costs of medical care, compensation, and disability, but also to return high proportions of injured or ill workers to work--all in a reasonable period of time. With all of the key players working together to provide care, guidance, and support during the healing process, the cost containment case for case management will no longer be a proposal, but will become a reality and necessity in cost-conscious and humane organizations.

A Cost Containment Case for Occupational Illness and Injury Case Management

Anne Hoiberg

In the face of rising occupational injury and illness costs, the United States Public Health Service, other federal and state agencies, and organizations in the private sector have begun to seek solutions through cost containment efforts. The success of such endeavors is dependent on the ability of proposed plans (1) to efficiently manage workers' compensation cases, (2) to contain occupational illness and injury costs in both the short and long run, and (3) to deal with the complex problems faced by the occupationally injured or ill worker. The objective of this study is to review and summarize the research that addresses these issues. To be specific, the twofold purpose of this study is to provide a brief description of workers' compensation and to examine the scientific literature on cost containment, case management, prevention, and intervention. The other objective is to formulate and proffer a remedy or process that would be expected to enhance the likelihood of returning the occupationally injured or ill employee to work and to reduce the increasing rate of medical, compensation, and disability costs.

Workers' Compensation

The Workers' Compensation system in the United States began in 1913 as part of the industrial and labor reforms of the early twentieth century. The system covers temporary disability, permanent partial disability, and permanent total disability claims; benefits paid are tax free which in some cases can yield a greater hourly wage than that typically earned. The aim of this program is to provide injured workers with medical care and disability payments--and to enable a quick return to work. To be more specific, employees are entitled to treatment for the effects of an industrial injury and to payment of temporary disability benefits until: they are able to return to work, maximum medical improvement is achieved, or the clinical condition reaches what is called the "permanent and stationary" stage (Firman, 1985).

Essentially, the system is no fault. The only requirement for medical care and disability compensation is that the injury occurred during the course of employment. A disability is deemed industrial even if the actual physical or emotional disability is a result both of industrial injury (or stresses) and pre-existing and nonindustrial conditions (Firman, 1985). Recently, an Appeals Board stated in the case of John Cogswell, 25 ECAB 88, that an injured employee "has the burden of establishing that the condition or conditions for which compensation is claimed resulted from the employment." Cases of occupational disease require a tracing to some type of hazardous exposure, which could present difficulties for claimants who are trying to establish a causative relationship. A few diseases are pathognomonic, such as silicosis among foundry workers and mesothelioma in workers exposed to asbestos (Locke, 1985).

The employee can choose his or her own physician, who administers appropriate care and completes a treatment report for the insuring agency. During the early phase of an injury, it is of paramount importance to establish the date when the injured employee can anticipate returning to work. The treating physician, with the aid of the patient, determines when further time off begins to do more harm than good and, as stated above, communicates to the patient an estimated on duty date to avoid later misunderstanding (Carey & Hadler, 1986). As several researchers have emphasized, the longer the temporary disability period the greater the risk that the individual will not return to work (Greenwood, 1984).

If the permanent and stationary stage is reached, evaluating physicians are asked to assess the worker's level of disability referable to the open labor market, the need for continued medical care, and the proportion of disability attributable to industrial and nonindustrial factors (Firman, 1985). Permanent partial disability awards are made to individuals on the basis of percentages of functional loss converted to percentages of the individual's or the state's average weekly wage earnings. The loss of functional ability related to an occupational injury or disease must be quantified after maximum medical improvement has been achieved. Thus, workers' compensation disability determinations require an assessment of "maximum medical improvement" or readiness to return to work and the extent

of any permanent partial disability. Most cases, however, involve treatment of discrete, self-limited conditions; at least 80% of compensation claims are for injuries that do not require time away from work for healing (Carey & Hadler, 1986).

Cost Containment

The Need for Cost Containment. In a recent publication, Ginzberg (1987) has predicted that health care expenditures in the U.S. during 1987 will pass the half-trillion-dollar mark, or \$511 billion, which represents 11.4% of the GNP. By 1990, total expenditures for health care will be in the range of \$640 billion, with a GNP of around \$5.5 trillion. By way of contrast, national health expenditures in 1980 accounted for 9.1% of the GNP; a decade earlier, President Richard Nixon warned us that the nation was facing a health care crisis because its expenditures totaled \$75 billion, or 7.5% of the GNP.

Over the years, the numbers of individuals on disability also have continued to increase; in 1980, four million persons received disability benefits from Social Security (Price, 1984). By the end of 1982, that number had increased to 3,973,462 persons who received Social Security disability payments under Title 2 and 2,231,493 under Title 16 (Ziporyn, 1983). Local governments also are facing such economic crises as increases in the numbers of public safety members retiring with a stress-related disability (Harrison, 1986). While the amount paid in the U.S. during 1980 for compensation alone exceeded \$15 billion, this amount has gradually increased over the years across occupations. For example, the amount paid in compensation and other costs to only one occupational group, coal miners with occupational respiratory disease, has totaled \$15 billion since the beginning of the federal black lung program (Weeks & Wagner, 1986). In 1987, the Department of the U.S. Navy reported a total of \$186 million incurred for compensation and disability costs (Griffiths, 1988).

As would be expected, these spiraling costs have increasingly alarmed federal, state, and insurance administrators. A need exists to reduce not only these medical care and disability costs but also the rate of growth in escalating expenditures. At the most fundamental level, reductions in the

spending on health care can be achieved in three ways (Fuchs, 1986). First, the producers of health care can increase production efficiency--by delivering the same amount of services with fewer inputs. Although such gains are possible in every organization, they will not prove to be a major source of cost reduction. Second, health care spending can be lowered by reducing the prices paid for such inputs as nurses' wages, physicians' fees, medications, and supplies. The third, and by far the most important way to contain costs, is to deliver less, which entails fewer hospital admissions, shorter lengths of stay, fewer tests and X-rays, and similar reductions across the spectrum of care (Fuchs, 1986). Marcus (1987) reviews a highly effective cost containment approach developed at the community level in Rochester, New York, in which nine hospitals agreed to a regional cap on inpatient expenditures.

In implementing a cost containment plan, two major issues need to be addressed. The most basic consideration is that cost containment endeavors should entail the initiation and maintenance of a high level of care without increased costs. Weinstein and Stason (1977) provide guidance by recommending that all resource allocation decisions be weighed in relation to expected benefits with quality-of-life considerations incorporated in the calculation of these benefits. The other concern is that such efforts should not result in a channeling or shifting of costs from one area to another, such as from inpatient care to ambulatory treatment.

While the aforementioned attempts to control rising costs would lower current baseline expenditures, Schwartz (1987) cautions that "only measures that reduce the growth in costs can solve the fundamental problem of a cost spiral. . . . even if all useless care were gradually eliminated, we could anticipate only a temporary respite from rising costs unless the forces sustaining the real rate of change--chiefly technological innovation and rising input prices--were simultaneously brought under control." Several long-term strategies could be initiated such as limiting the introduction and diffusion of new technology. This restraint would require a restriction on the amount of money invested by the federal government in research on new technology that subsequently would greatly increase health care costs. As an example of such a costly research project and our reluctance to limit costs

in the technologic arena, Schwartz (1987) notes that continuing funding has been recommended for artificial heart research at the National Institutes of Health. Other strategies include imposing some type of economic and regulatory measures which would reduce industry's research and development in the technologic area and would ration care requiring high technology.

Compensation Cost Containment. Workers' compensation health care costs account for 15 to 30% of employers' losses for occupationally sustained illness and injury. In addition, the diagnosis and treatment of compensable disease and injury can lead to a host of associated pension, retraining, administrative, and lost productivity costs (Ducatman, 1986). Cost containment strategies for such cases include a lowering of administrative expenses by increasing efficiency and limiting the number of people (and the time people spend) on disability. To increase efficiency in administering occupational injury cases, which in many instances are extremely complex, processes are being developed to enhance care coordination and case management. Similar to the previous comments pertaining to cost containment approaches in reducing health care costs, it is essential in disability cases not only to reduce costs but also to lower the rate of growth in occupational injury payments (both direct and indirect).

Specific cost containment efforts, as proposed for workers' compensation cases by Polakoff (1986), include the following: (1) qualified, unbiased medical examiners should be used; (2) proven cost containment measures should be applied, such as critical-claim reviews, second opinions, treatment protocols, panels of preferred providers, utilization reviews, precertifications, concurrent and retrospective reviews, and negotiated rates; (3) new or marginal clinical entities, such as chiropractic, should be carefully monitored; (4) a single state insurance carrier should be considered; and (5) a data base should be built to provide statistically valid data for analyses of the relationship of occupational diseases to long-term exposure. This source also should be used to examine the associations of injuries with demographic and psychosocial variables. Perhaps most important, an employer should require accurate and complete medical information with respect to any compensation claim. As stated above, if there is any question as to the validity of a claim, a second opinion must be obtained.

Case Management

To ensure the success of cost containment efforts, a need exists to manage each case of occupational illness or injury with the greatest of care and expediency. To be achieved is a combination of endeavors that includes attempting to lower costs while enhancing the quality of care through effective case management. The four most important participants in case management include the attending physician, the agency's case facilitator, the occupationally incurred ill or injured worker, and the line supervisor or employer. Each of the first three roles will be discussed in this section whereas the line supervisor's or employer's role is described in the section on prevention.

Attending Physician's Role. The attending physician is a designated health professional who serves as a gatekeeper or the patient's "primary physician" and refers the patient to specialist services, as needed (Somers, 1983). The attending physician provides "cognitive," communication, and coordination skills and prescribes psychosocial support and other necessary services. A proposed model for the attending physician is the biopsychosocial model which takes into account the patient, the social context, and the health care system in which the patient has his or her needs met. Under this approach, the attending physician is motivated to become more informed and skillful in the psychosocial areas, "disciplines now seen as alien and remote even by those who intuitively recognize their importance" (Engel, 1980). The biopsychosocial physician is expected to have a working knowledge of the principles and practices of science as they apply to humans. Assuming these biopsychosocial responsibilities should be considered part of a new system that will help both the doctor and the patient in their pursuit of rapid healing.

To minimize physical or mental limitations from an injury or illness, the initial step is to provide the employee with high quality medical care, to be followed with ongoing care from a physician familiar with the environment to which the worker will return (Berkowitz, 1985). Hadler (1982) suggests that the challenge for physicians is to begin to study the illness of "work incapacity" as experienced by their patients. A job description and a listing of the physical and mental requirements of the position should be

forwarded to the physician to assist in the therapeutic and return-to-work process. Also needed is a better understanding of disease, illness, injury, and factors in the work place that predispose workers to incapacity.

The physician is expected to understand the patient's attitudes and beliefs with respect to the injury or illness and treatment, to educate the patient, to explain the alternatives, to present the therapeutic plan and its potential hazards, to mobilize the support of the family, and to arrange for monitoring the level of compliance (Almy, 1981). The effectiveness of the doctor's management of the patient depends on the kinds of expectations and instructions he provides the patient in preparation for the road to recovery. Whether doctors say anything or not, patients will anticipate and acquire expectations of the course of their condition: how they will feel and what they will experience. Without credible instructions, their expectations may be highly contrary to what is likely to occur, and this discrepancy may alarm patients and disrupt their management (Mechanic, 1972). Physicians may be able to alleviate patients' distress by reassuring them and bolstering their esteem and sense of mastery.

Most important, physicians need to increasingly help their patients to set aside the injured or sick role and motivate them toward rehabilitation. As stated by Greenwood (1984), the power of suggestion has been observed in all cultures, and the suggestion of enablement rather than disablement begins with physicians. Their positive suggestions can influence and motivate patient behavior toward return to work or rehabilitation.

In workers' compensation cases, the physician's role is subsumed under three basic models: source of information for the determining agency, such as providing medical evidence for consultative examinations; advocate and counselor for the patient; and adjudicator and certifier. While these roles typically are appropriate in the physician-patient relationship, difficulties may arise for the physician and patient if the roles become confused or even contradictory. For example, it would be highly inappropriate for a doctor to act as an advocate for a patient's disability claim on one visit and as an adjudicator on the next (Carey & Hadler, 1986).

The proper role of an attending physician in an occupational injury or illness case is to provide an opinion on the effect of a patient's impairment on his or her ability to perform both occupational and everyday tasks (Ziporyn, 1983). In discussing disability and compensation, a distinction is made between impairment and disability. Impairment is a physical or mental limitation in function whereas disability refers to the "incapacity of an individual to meet certain standards of physical efficacy and/or social, occupational or economic responsibility" (Carey & Hadler, 1986). Those authors amplify that definition by stating that disability is a multifactorial function whereby economic and social aspects of a person's life interact with impairment to result in disability. A physician measures the extent of impairment while, in most bureaucratic systems, an administrative agency assesses disability (Carey & Hadler, 1986). Heretofore, physicians typically have been "incidental" to a system that in fact relies heavily on their input of documentation and opinion evidence (Darling-Hammond & Kniesner, 1980). In many disability cases, their input has been less than effective, which has led to some instances of erroneous determinations. As more occupational injury and disease claims are filed, however, physicians are becoming increasingly involved in the resolution of contested issues, particularly causation and extent of disability. Current endeavors are attempts to make medical evaluations as objective as possible through job analyses and testimony from court-appointed physicians experienced in disability evaluation (Ziporyn, 1983).

In order to lower costs in a case management plan, it is essential that physicians are committed to reducing costs. To assess the attending physician's or primary care gatekeeper's influence on health care costs, Moore, Martin, and Richardson (1983) summarize the results of a randomized controlled trial conducted by investigators at the University of Washington. The study compares the costs in the standard United Healthcare plan (with a gatekeeper) with those in an experimental plan that has no gatekeeper. At the end of a 12-month period, the enrollees in the standard United Healthcare plan with a gatekeeper have a significantly lower outpatient cost (\$221 vs. \$250 per user per year) which is attributed to lower percentages of enrollees who use services and visit specialists. Inpatient costs and the number of primary care visits are similar in the two plans. The percentage of

enrollees with at least one claim is significantly higher in the plan without a primary care gatekeeper. This finding suggests that the higher cost in the nongatekeeper plan may have occurred because of an effect on behavior (i.e., a decrease in the number of initial visits to providers) rather than a difference in the referral habits of primary care physicians. In other words, savings accrue because of a change in enrollee behavior rather than physician behavior. The authors conclude that the primary-care gatekeeper plan did lower costs, although probably not as low as had been expected.

Care Coordinator-Case Facilitator's Role. The second crucial role in case management is that of the agency's care coordinator-case facilitator. This individual in the workers' compensation system acts as a liaison between the occupationally ill or injured worker and the physician, other health care personnel, the supervisor and work place, and Department of Labor (DOL), Office of Workman's Compensation Programs (OWCP). According to Berkowitz (1985), Chrysler Corporation has had experience with this type of short-term disability management and has seen disability costs decline markedly. The United States Public Health Service recently has created the role of care coordinator-case facilitator in the Pacific basin of the National Oceanic and Atmospheric Administration. The functions to be performed by this individual include ensuring that all care and claims issues are addressed within specified time frames: obtaining appropriate medical care for the occupationally incurred ill or injured worker, monitoring medical services, maintaining ties with the ill or injured employee and all key players in each case, providing assistance in implementing the return-to-work plan, serving as a source for care and claims information, monitoring the return-to-work plan, and promptly and accurately filing forms with DOL OWCP.

Occupationally Ill or Injured Employee. The role of the occupationally ill or injured employee will be described by discussing the following topics: illness behavior or response to pain, high health care users, and malingerers. The concept of illness or disease refers to limited scientific models for characterizing constellations of symptoms and the conditions underlying them (Mechanic, 1986). By way of contrast, the concept of illness behavior describes the ways in which people respond to bodily indications and the conditions which they view as abnormal. When a person feels ill or is in

pain, he or she typically engages in illness behavior which is any activity that describes the state of his or her health and leads to a suitable remedy (Kasl, 1966). Illness behavior or response to pain, thus, involves the manner in which individuals monitor their bodies, define and interpret their symptoms, take remedial action, and utilize sources of help as well as the more formal health care system (Mechanic, 1986). In other words, illness behavior, as coined by Mechanic, is defined as an individual's perception, evaluation, and response to his or her symptoms (Joyce, 1985). Factors associated with an individual's tendency to engage in illness behavior include sociocultural influences, social situations, and personal predispositions.

In addition, Mechanic (1986) points up that illness behavior is more than a psychological response among persons faced with a situation calling for assessment. Such behavior also can arise in response to troubling social situations and may serve as an effective means of achieving release from social expectations, an excuse for failure, or a way of obtaining a variety of privileges including monetary compensation. Work is a "social expectation" that could easily lead to illness behavior in a troubled employee. Moreover, the physician and other health personnel may be an important source of social support for patients or injured employees without strong social ties. A vague complaint of illness or pain may be one way of seeking reassurance and support through a recognized and socially acceptable relationship when it is difficult for the patient to confront the underlying problem without displaying what he or she might consider weaknesses and vulnerabilities (Mechanic, 1986).

Work satisfaction or dissatisfaction, moreover, may influence health risks, health attitudes, and perceived opportunities for health care (Verbrugge, 1982). In her study, Verbrugge (1982) hypothesizes that dissatisfied people might have a higher probability than satisfied workers of being careless in their activities, adopting unhealthy life styles, or experiencing continual stress that taxes their physical well-being. They also may worry more about health, focus more on their physical discomforts, interpret symptoms as illness more readily, and seek more ways to adopt the sick role. As a result of these attitudes and behaviors, dissatisfied people

may ultimately be sicker by medical criteria, experience more symptoms in daily life, take more curative health actions, but probably take fewer preventive ones than will satisfied people. Of these hypotheses, all receive support except that dissatisfied people are actually less willing and able to take curative health actions than are satisfied people, and these factors dampen their health behavior.

Engaging in prolonged illness behavior, whether in response initially to disease or physical or psychological pain, frequently is interpreted as a reflection of delayed recovery syndrome. This syndrome is suspected in cases where the recovery of a physical injury goes beyond normal medical expectations for some apparently nonphysical reason. It is common knowledge in any medical setting that some patients consistently and persistently seek medical care for a wide range of physical and psychological symptoms for which no underlying organic disorder is discernable. To be more specific, Wagner and Curran (1984) report the rates from several studies of health care utilization that physicians consider to be trivial or inappropriate to fall in a range from 7% to 25% of their practices. In these patients, there are clear signs that nonhealth-related problems are causing recovery delays. These frequent users have been studied under a variety of labels including hypochondriacs, "worried well" or WW, problem patients, and persistent somatizers (Wagner & Curran, 1984).

In order to distinguish the WW from other health care users, an 81-item instrument has been developed by Wagner and Curran (1984) to assess the health beliefs of four groups of health maintenance organization (HMO) subscribers. Table I briefly outlines the general topics and provides examples of questions from that instrument. In general, results of comparative analyses across the four groups of subscribers indicate that susceptibility to symptomatology (i.e., an individual's perception of his or her own risk of contracting a condition), perceived seriousness of symptoms, and barriers to treatment are related to WW behavior (Wagner & Curran, 1984). Such patients are highly internalized and interpret bodily symptoms as events of great importance and seriousness. The WW report high degrees of concern about their own mental health. Using results derived from the Illness Behaviour Questionnaire, Pilowsky, Smith, and Katsikitis (1987) also report that

TABLE I.—SCALES DEVELOPED TO ASSESS HEALTH BELIEFS IN A HEALTH MAINTENANCE ORGANIZATION

1. Somatic symptomatology: Frequency x average intensity of the six somatic symptoms which include: stomach trouble, headaches, weight gain, appetite loss, tired and run down, and trouble sleeping ("What do you think is your chance of having the following problem (e.g., stomach trouble) during the coming year?").
2. Psychological symptomatology: Frequency x average intensity of the seven psychological symptoms including: depression, emotional breakdown, trouble getting along with people, feels like no one appreciates them, anxious, drinking too much, and dissatisfaction with sex life ("What do you think is your chance of having the following problem (e.g., depression) during the coming year?").
3. Somatic seriousness: Mean of perceptions of seriousness of the six somatic items ("How serious would it be if you got a particular problem (e.g., stomach trouble)?").
4. Psychological seriousness: Mean of perceptions of seriousness of the seven psychological items ("How serious would it be if you got a particular problem (e.g., depression)?").
5. Somatic benefits—therapist: Mean of perceptions of potential treatment benefits of a therapist for the somatic symptoms ("What do you think are a therapist's chances of helping with a particular problem (e.g., stomach trouble)?").
6. Psychological benefits—therapist: Mean of perceptions of potential treatment benefits of a therapist for the psychological symptoms ("What do you think are a therapist's chances of helping with a particular problem (e.g., depression)?").
7. Somatic benefits—physician: Mean of perceptions of potential treatment benefits of a physician for the somatic symptoms ("How much do you think your family physician could help a particular problem (e.g., stomach trouble)?").
8. Psychological benefits—physician: Mean of perceptions of potential treatment benefits of a physician for the psychological problems ("How much do you think your family physician could help a particular problem (e.g., depression)?").
- 9-14. Barriers: Six independent one-item measures, each assessing a unique cost. These include: knowing where to go for help, monetary cost, embarrassment, knowing when to go for help, the belief that one should handle one's own problems, and reactions of family and friends ("How much would the following interfere with your seeking help for emotional problems (e.g., embarrassment, cost)?").
15. General health concern: Average of two items measuring concern about one's health and illness ("Some people are quite concerned about the chance of getting sick while others are not concerned. How concerned are you?").
16. Mental health concern: Average of two items measuring concern about mental health and mental illness ("How much do you agree or disagree with this statement? If I'm upset emotionally, I would go to seek professional help right away.").
17. Health status: A one-item, five-point Likert scale assessing one's health.
18. Powerful others health locus scale: A five-item scale measuring belief in powerful others' responsibility for one's health. These five items are from the PHLC scale developed by Wallston, Wallston, and DeVellis (1978).
19. Internal health locus scale: A six-item scale measuring belief in self-reponsibility for health care taken from an earlier version of the health locus of control scales (Wallson et al., 1978).

SOURCE: Wagner PJ, Curran P. Health beliefs and ... "worried well." *Health Psychol* 1984; 3:459-474.

somatizing patients have elevated scores on disease conviction which indicates that they are more focused on somatic symptoms and concerned that they are ill physically. They have a greater degree of affective disturbance (i.e., they acknowledge more anxiety and depression) than those who have objective somatic pathology. This disturbance combined with higher (but not grossly elevated) disease conviction scores suggests that it might not be too difficult for them to reformulate their problems in nonsomatic terms.

Wagner and Curran (1984) describe two paradoxical findings concerning the WW that they compiled from the results of analyzing their health beliefs instrument. First, persons identified as WW do not believe in the physician's responsibility for their health but continue to actively pursue medical treatment. This behavior may be related to their need for symptom legitimization and their corresponding mental health concern. The second, seemingly contradictory finding is that the WW report high ratings on specific symptoms, yet their rating of their overall health status does not differ from that of other frequent users. This finding may reflect an underlying degree of self awareness of the psychosomatic, nonorganic nature of their disorders. That is, WW patients do not perceive themselves as sick but rather as experiencing symptoms. This experience of discrete symptoms as contrasted with unifying sickness or diagnosis captures the continued dilemma of this type of patient. He or she continues to report additional symptoms in order to legitimize medical visits that are intended to legitimize the original symptom(s) (Wagner & Curran, 1984).

Although the attending physician, care coordinator-case facilitator, and employer can reduce the costs of patient care through effective case management, even more important is the fact that the reduction in costs can be attributed to their influence on patient behavior. In order to bring about large reductions in the short-term costs of occupational injury, it will be necessary to influence the behavior of the WW. If these patients are managed as though they only had the somatic problem, the stage may be set for long-term inappropriate use of health care facilities (Pilowsky *et al.*, 1987). With about a 10% prevalence of WW in HMO settings, changes in the utilization behavior of a group of this size could have a substantial impact on the cost of providing care. Results of the study by Moore *et al.* (1983) show that the

gatekeeper can influence the behavior of a "normal" population, and such an impact would be expected to change the behavior of the WW.

Credible instructions provided in a sympathetic and supportive way might be helpful for these patients in developing an effective means of understanding their symptoms. To reassure these patients by taking into consideration their assessment of their symptoms or conditions would serve to enhance confidence in the physician. The literature contains frequent reports not only of patients with hypochondria who go from one doctor to another but also of repeated cases in which the patient appears to get gratification in disconfirming the doctor's appraisal. Therapeutic approaches that facilitate the patient's coping efforts may be particularly useful with these difficult patients (Mechanic, 1972). The biopsychosocial approach seems to be especially beneficial in working with these patients.

For those who do not have a tangible medical condition and refuse to return to work, primarily individuals who have submitted claims for such conditions as chronic pain syndromes, emotional trauma, or psychological or stress disorders, an attempt should be made to determine whether or not they are malingering. Repko and Cooper (1983) report that a total of approximately 7% of their workers' compensation cases qualify as malingerers and another 7% have a tendency toward dramatic overstatement of symptoms. With each compensation award for an intangible injury, it has become increasingly more important to identify cases of malingering. Especially suspicious are medical disability claims that are reported in companies with forthcoming layoffs and among employees approaching retirement age. Also of value in identifying malingering is a thorough understanding of the physical and mental requirements of each claimant's job which would provide the basis for accepting or questioning a specific type of injury or illness.

An examination of a claimant's activities might reveal the extent of his or her disabilities; an investigator could be hired to observe the individual during leisure activities, work tasks, and social gatherings as well as around the residence (Lees-Haley, 1986). Conversations with coworkers and interviews of the individual by physicians, psychologists, and case facilitators also would provide information on the possibility of malingering.

Persons truly suffering from physical symptoms or those who are genuinely mentally disturbed are distinguishable from malingerers on the basis of the excessiveness and/or inappropriateness of the behavior that they exhibit.

In addition to interviews conducted by individuals skilled in detecting alleged symptoms and deceit, the disability claimant can be requested to respond to psychological testing, such as the Minnesota Multiphasic Personality Inventory or the Rorschach. One instrument that holds promise for detecting malingerers is that of the Individual Behaviour Questionnaire (IBQ), which was developed by Pilowsky and Spence (1975) and includes seven scales: General Hypochondriasis, Disease Conviction, Psychosomatic Perception, Affective Inhibition, Dysphoria, Denial, and Irritability. Subsequent factorial analyses of the IBQ generally substantiated those results and also indicated that the instrument is saturated with neuroticism, a dimension known to be related to excessive medical complaints (Zonderman, Heft, & Costa, 1985). This instrument also has been shown to be effective in identifying patients who would be especially amenable to psychological interventions (Wilson-Barnett & Trimble, 1985).

In a 1984 study, Clayer and his colleagues determine that 21 items of the 62-item IBQ significantly differentiate a group of malingerers from samples of normal and neurotic persons. Results show that the highest scores on these 21 items are observed for the group of malingerers or conscious exaggerators, normal individuals who are asked to respond as though they hoped to receive disability compensation in the absence of symptoms or pain. Table II is a percentage distribution of affirmative responses to the 21-item Conscious Exaggeration (CE) Scale for three groups.

Such results suggest that responses to the CE could be used as an adjunct to the assessment of persons applying for compensation, especially among individuals for whom it is uncertain whether their condition is neurotically determined or simply consciously exaggerated. To further explore the relationship of conscious exaggeration with symptoms suspected of being more of a psychological than physical origin, Clayer *et al.* (1986) asked two psychiatrists to evaluate 20 individuals referred by legal advisors because their symptoms seemed to be at least partly of psychological origin.

TABLE II.—ITEMS OF CE-SCALE WITH PERCENT ANSWERING AFFIRMATIVELY
FOR NORMALS, "MALINGERERS," AND NEUROTICS

	Norm.	Maling.	Neurot.
2. Do you think there is something seriously wrong with your body?	7.3	75.6	44.0
4. Are you easy to get on with when you are ill?	57.3	19.5	44.0
10. Do you find that you are often aware of various things happening to your body?	51.2	81.7	51.2
14. Do you think that other people realise what it's like to be sick?	86.6	35.4	65.5
17. Does your illness affect the way you get on with your family or friends a great deal?	17.1	81.7	50.0
21. Are you afraid of illness?	29.3	58.5	38.1
28. Do you care whether or not people realise you are sick?	26.8	58.0	27.4
29. Do you find that you get jealous of other people's good health?	7.3	61.0	33.3
30. Do you ever have silly thoughts about your health which you can't get out of your mind, no matter how hard you try?	15.9	62.2	21.4
32. Are you upset by the way people take your illness?	6.1	57.3	23.8
33. Is it hard for you to believe the doctor when he tells you there is nothing for you to worry about?	24.4	86.6	54.8
34. Do you often worry about the possibility that you have got a serious illness?	20.7	84.1	33.3
37. Do you often think that you might suddenly fall ill?	11.0	51.2	17.9
38. If a disease is brought to your attention (through the radio, television, newspapers or someone you know), do you worry about getting it yourself?	13.4	39.0	13.1
39. Do you get the feeling that people are not taking your illness seriously enough?	14.6	75.6	34.5
40. Are you upset by the appearance of your face or body?	23.2	51.2	17.9
41. Do you find that you are bothered by many different symptoms?	9.8	67.1	36.9
42. Do you frequently try to explain to others how you are feeling?	14.6	53.7	29.8
47. Do you find that you get sad easily?	23.2	73.2	47.6
56. Are you more irritable towards other people?	11.0	68.3	42.9
59. Is it hard for you to relax?	37.8	79.3	59.5

SOURCE: Clayer JR, Bookless C, Ross MW. Neurosis ... Questionnaire. J Psychosom Res 1984; 28:240.

All $p < 0.01$ from normals.

A statistically significant correlation coefficient ($r = 0.64$) is reported between the CE scale and the psychiatrists' evaluations. Although the authors conclude that these findings reflect a commonality between the scale and evaluations, further research is warranted with larger samples before the CE Scale can be regarded as providing a basis for legal or medical decisions. Zonderman et al. (1985) also recommend that the IBQ, although related to measures of neuroticism, should not be used to diagnose patients with physical complaints for whom organic pathology is uncertain until direct evidence for the instrument's validity has been established.

Prevention

Health Promotion and Injury Prevention. A new approach to contending with work-related disability would place the responsibility on employers, first, for preventing and, second, for intervening in disabling situations (Greenwood, 1984). Such an endeavor would lighten the burden typically carried by physicians for evaluating and treating disabling conditions. To fulfill the responsibility for prevention, health promotion programs should be integrated in the work setting: weight reduction and nutrition, smoking cessation, substance abuse rehabilitation, management of blood pressure and cholesterol levels, life style modification, physical well-being and exercise, and stress management. Several studies have been initiated to assess the effectiveness of such health promotion programs in terms of reductions in absenteeism rates and health care costs. Elias and Murphy (1986) have prepared a review of the following health promotion programs: The Prudential Study, Canada Life and North American Life Study, The Tenneco Study, Blue Cross-Blue Shield of Indiana Study, Blue Cross of California, American Telephone and Telegraph, Johnson and Johnson, and Control Data Corporation. While the analyses for many of those studies have not as yet been published, Elias and Murphy (1986) conclude that the Blue Cross-Blue Shield of Indiana Study provides the strongest evidence in support of program-related health care cost reductions. Another research project, one that has been designed to examine the overall effects of a health promotion program in the military, is being conducted on the U.S. Navy's Health and Physical Readiness Program. Results of research for that project have emphasized the importance of physical readiness intervention programs as well as smoking prevention and cessation programs (Conway & Dutton, 1985; Conway & Cronan, 1986).

Safety training programs also are an integral part of many organizations' health promotion and injury prevention programs. Such courses cover the topics of prevention of back injuries through effective lifting techniques, cardiopulmonary resuscitation and the Heimlich maneuver, adherence to the wearing of protective and safety items of apparel, first aid techniques, and emergency procedures. In order to reduce future injury rates, many organizations have created review groups to study each lost-time injury; the objective is to examine the circumstances of the injury and to initiate the most expeditious way to ensure the best care available and an early return to work--and future prevention of the same type of injury.

In addition to the implementation of such formal programs, employers need to develop techniques that will motivate employees to maintain their good health and to remain on the job. The promotion of positive health and the primary prevention or postponement of disabling conditions call for the continuing educational influence of supervisors and other officials in the work place. The care devoted to guiding individuals in health habits and in modifying life styles is likely to have a greater effect on health outcomes than all other health services combined (Almy, 1981). The Navy, for example, recently initiated an educational program on how to care for and maintain a healthy back, a program that emphasizes the individual's responsibility for self-care of the back (Jillson, 1988). By encouraging a high level of motivation for enhancing one's health, the healthy employee is more likely to remain on the job, and the injured or ill employee will be more likely to want to return to work as soon as possible.

The importance of these healthy life-style promotional efforts is reflected in results of the research by Zook and Moore (1980), who discuss the characteristics, life styles, and health care utilization of high- and low-cost users of medical care. Those researchers report that about 13% of patients use as much of medical resources as the remaining low-cost 87%. Repeated hospitalizations for the same disease are more characteristic of high-cost users than single cost-intensive stays, intensive care, or prolonged single admissions. Adverse life styles are noted more often in the medical records of high-cost than low-cost medical care users, which is shown by the prominence of alcoholism, heavy smoking, and obesity. Illnesses with

the longest duration and most repeated admissions include cardiovascular disease, certain congenital anomalies, certain types of injury (notably spinal cord injury), renal failure, disorders of alcoholism, and long-term obesity. Hospital economy measures should be targeted more precisely on those small groups of patients who require much longitudinal care or demonstrate a high probability of readmission (Zook & Moore, 1980). In another study of marginal life styles and health care costs, Hoiberg and McNally (1988) have shown that among hospitalized Navy enlisted men diagnosed as obese the rates of hospitalizations for almost all conditions and proportions of physical disabilities are significantly greater than those reported for nonobese patients.

Harrison (1986) has concluded that in disability retirement resolution the following major areas should be addressed: legislative reforms, administrative reforms, reactive (after the fact) programs, and preventive programs. For the purpose of this discussion, the most pertinent are preventive and reactive programs, the latter of which includes initial treatment, light duty assignment, and aggressive defensive litigation. For prevention, selection procedures and pre-employment physicals are recommended as well as the implementation of an effective safety program and an analysis of each working environment. An effective safety program should include safety training, inspections, accident investigations, and protective safety equipment. Safety incentives, such as awarding monetary prizes for decreases in claims, might be considered. The analysis and design of the work environment should be conducted to develop a work setting conducive to the support and care of employees. Thus, a lot can be done to prevent disability from ever occurring through the obvious health and safety measures (Berkowitz, 1985).

Return-to-work Plans and Psychological Characteristics. Of greater importance than cost containment, case management, and prevention is that of returning occupationally injured or ill employees to work and ensuring that they are restored to their full potential as soon as possible. As noted above, but the statement cannot be emphasized enough, the injured or ill worker needs to return to work. Even if the employee's functional capacity is marginal or minimal, efforts should be made to allow him or her to return to work. There are few aspects of life that match work as a curative healing

process. Verbrugge (1982) concludes that employment, marriage, and children are associated, in that order, with good health. A restoration of workers in a gradual supportive environment will ultimately lead to the anticipated level of productivity and, moreover, will end up being a cost-saving procedure (Cherkas, 1984).

A difficulty in motivating disabled employees to return to work might be encountered if a second or replacement income is available. The circumstances that fuel this lack of motivation include being a member of a two-income family and the availability of generous, employer-sponsored disability plans. With well-designed short- and long-term disability plans, however, there will be an incentive for employees to return to work (Jacobsen, 1986). The long-term disability plan must be coordinated with the employer's retirement plans or it may become a substitute for a retirement plan, especially if the disability plan provides more generous benefits. Jacobsen (1986) notes that the compensation payments paid should be adequate, but not overly generous in order to prevent malingering. For those organizations with a union, effort is needed on the part of employers and unions to work together on early return-to-work policies and procedures (Greenwood, 1984). Rehabilitation provisions should be included in both short-term (usually no more than 26 weeks) and long-term disability plans.

Timeliness is extremely important in managing all cases, especially the implementation and adherence to the return-to-work plan. As increasingly more time elapses from the time of injury, the probability of a return to work decreases. Greenwood (1984) reports that after 6-8 weeks, 10-15% of low back injuries become problem cases, ones reluctant to consider a return to work. Also to be emphasized is that the earlier the intervention, such as physical therapy or mental health therapy, the better the chance of recovery. Securing other types of employment or becoming involved in neighborhood projects do not become obstacles if the return-to-work plan and treatment interventions are implemented early in the course of the injury. It is imperative for the employer to keep involved by working with the physicians and therapists, as well as the employee, in maintaining a positive attitude and by offering modified job duties if possible. If the injured employee does not immediately return to work, the employer should continue to have

contact with him or her. Throughout the healing period, moreover, the employer should monitor the individual's well-being and his or her return-to-work plan; once a claim is approved, appropriate follow-up should be implemented to provide contact during continued disability (Jacobsen, 1986). A positive attitude on the part of the employer will encourage an employee to return to work sooner.

Best results after a workers' compensation injury are obtained in individuals who: have early contact with their immediate supervisor after the injury; are not near retirement age; have full explanations of their rights, benefits, and privileges under workers' compensation laws; and are given a prescription of continuing treatment while reporting for duty at work every day, even light duty. For those cases in which psychological problems co-exist with the physical injury, early psychiatric referral should be made as opposed to a late one after all else seems to have failed (Sprehe, 1984).

For those who cannot return to their pre-injury job, Darling-Hammond and Kniesner (1980) suggest that our current system fails to ensure that they receive the needed physical or vocational rehabilitation services: "a large proportion of injured workers who could benefit from rehabilitation services do not receive them." Timeliness is crucial in rehabilitation endeavors in that these programs should be initiated as soon as possible after the injury. The assessment of obstacles to rehabilitation is particularly important for physicians, whose ultimate therapeutic goal is to restore patients to their full potential. Programs should be developed to resolve disputes over rehabilitation (Harrison, 1986).

In understanding the compensation claimant further, it is important to recognize that the injured worker presents some unique problems. Injured workers experience pain and suffering which include not only the injury-associated pains but also the potential ramifications of a reduction in income, legal and adversarial processes, a loss of support from coworkers, reemployment, and reeducation (Cherkas, 1984). The dilemmas to be resolved by the injured worker can include how to deal with pessimism, pain and suffering, limited potential, alienation, feelings of inadequacy, and treatment costs. In a society that is so firmly rooted in the work ethic,

the psychological pressures faced by the injured worker can be overwhelming. If allowed to develop into psychological problems, then both the system and the patient will suffer the consequences. The financial costs to the system attributable to delayed recovery, caused at least in part by these psychological problems, are staggering.

Many studies have examined workers' compensation patients with respect to their psychological makeup, and results suggest that the workers' compensation patient can be characterized on several psychological dimensions. Snibbe, Peterson, and Sosner (1980), for example, state that the MMPI profiles of 47 workers' compensation claimants show peaks on the Hypochondriasis, Depression, Hysteria, Schizophrenia, and F scales. The composition of that sample includes four worker-related disabilities or injuries: head injury, psychiatric "stress and strain," low back pain, and miscellaneous. The MMPI profile scores are remarkably similar across those four groups. Other researchers (Bradley, Prokop, Margolis, & Gentry, 1978) report comparable profiles on the MMPI in a sample of low back pain patients.

On the basis of data derived from the MMPI on 200 cases, Repko and Cooper (1983) also conclude that there are indications that psychological factors play a role in many workers' compensation cases. The typical workers' compensation patient "has evidence of a psychological disability that may compound an already existing physical disability." For the average workers' compensation case, the means on the Depression, Hypochondriasis, and Hysteria scales are above the cut-off point of 70, which falls in the pathognomonic range. MMPI profiles with scores greater than 70 are known as "elevated" profiles and indicate significant psychological symptomatology whereas individuals with MMPI scores less than 70 typically lack significant psychological symptomatology. Repko and Cooper (1983) also note that an organic medical disability in and of itself is not sufficient to raise MMPI profile scores greater than 70.

In another study by Repko and Cooper (1985), results reveal identical profile scores for these three scales in another sample of workers' compensation cases of which 88% represent orthopedic and psychological complaints. It should be noted that the claimants in the psychological

complaint category have an elevated mean Depression scale score which suggests that those individuals present emotional and psychological symptoms more readily than do individuals with back or other orthopedic complaints.

Other analyses compare the number and types of personality disorders present in workers' compensation claimants. The Millon Clinical Multiaxial Inventory data compiled by Snibbe et al. (1980) suggest a basic personality style of submissive- or passive-dependence with anxiety and depressive symptoms, a profile that complements and reinforces the data on the MMPI. Also examining the Millon Inventory, Repko and Cooper (1985) indicate that claimants in the psychological complaint category have the highest evaluation on the Passive-Aggressive scale, followed by the Avoidant scale. Those results appear to be in line with clinical observations because patients in the psychological complaint category are often the ones who are extremely vulnerable to symptoms, such as anxiety and depression related to specific situations at work. The passive-aggressive patient may do a lot of complaining to lawyers, psychiatrists, psychologists, but may be unable to confront effectively and directly the work situation because of the passive-aggressive nature of his or her personality or "avoidant" personality orientation. Perhaps one practical implication for employers is to institute programs that help employees communicate their concerns and frustrations in the work place--and not the courtroom (Repko & Cooper, 1985).

Another psychosocial screening instrument that might improve physicians' recognition of psychiatric disorders is the Psychosocial History Screening Questionnaire, a 36-item questionnaire measuring 17 areas of potential psychosocial dissatisfaction. Thompson, Stoudemire, Mitchell, and Grant (1983) provide the following explanations for using such a screening instrument: psychological problems are often the reason for patient visits, they contribute significantly to the patient's physical symptoms or ability to tolerate them, and they may influence compliance with medical advice. The problems most frequently cited at the distress levels include finances, time or motivation to pursue leisure activities, and problems with work.

Being unemployed has been shown to be highly correlated with depression and emotional instability. Vaillant (1980), for example, has concluded that

being chronically unemployed is more highly correlated with chronic depression and emotional instability than it is with prior training, ability, injury, or job status. In Vaillant's extensive follow-up study of 465 men, 47 years of age or older, lack of good mental health is the primary reason for unemployment. People who are chronically psychiatrically disabled, whether or not it is attributable to a work-related problem, must be treated in order to be restored to enough stability to apply for and to hold a job.

For disability cases, it is important to note that depression is particularly likely to occur where there is a poor prognosis to the medical condition (Moffic & Paykel, 1975). Results of Moffic and Paykel's study indicate that depression is a common phenomenon among medical inpatients, present in 24% within a week of admission, and developing in another 5% if they are followed during their time in the hospital. Recognition of depression by the staff of the medical wards seems to be poor, which is more a reflection of failure to look for any psychological problems rather than of any confusion in diagnostic symptoms. Depression is reported to be more common among those who are more severely ill, have been ill longer, are in pain, are confined to bed, and are diminished in alertness. The more severe the illness, the more likely the depressed patient is to ultimately die or to be transferred to another health-related facility--rather than to go home. In examining physicians' awareness of patients' psychological problems, internists in another study also are reported to have failed in recognizing several psychiatric diagnoses (e.g., suicidal ideation) in a sample of their patients, although the patients are observed to be willing to reveal at least some of their problems if asked (Thompson et al., 1983).

Overall, those results suggest that the availability of a socially approved compensation system may tend to attract persons with the psychological characteristics just described, or those findings could infer that the often lengthy and adversary claims process fosters and maintains such characteristics (Snibbe et al., 1980). Those findings also may indicate that the observed homogeneity could limit the usefulness of personality tests with those individuals in making a significant diagnostic differentiation. On the other hand, the issue of prediction by industry or insurance carriers may be addressed by identifying a high-risk group of dependent individuals who may

be more prone to filing compensation claims. Those data also have treatment implications regarding the need for goal-oriented, short-term psychotherapy, and possibly behavioral intervention. The following section will address the issues of psychological and psychiatric interventions as adjunct services to the treatment of occupationally sustained illnesses and injuries.

Effects of Psychological or Psychiatric Treatment Intervention

An important goal of all treatment programs is the appropriate use of medical care, rather than merely reduced medical utilization. Effectiveness and cost effectiveness should be weighed against the goals that a treatment intends to achieve. The "cost-offset" is not an intended outcome of mental health treatment (MHT): patients do not elect MHT to reduce other medical costs nor do physicians usually refer patients for that purpose (Schlesinger, Mumford, Glass, Patrick, & Sharfstein, 1983). However, in view of the concern that has been voiced about the high cost of care for medical and surgical conditions and the increasing prevalence of chronic illnesses in the community, illnesses in which psychosocial factors are especially important, there is a strong case for greater support being given to MHT and/or consultation-liaison psychiatry services (Mendelson, 1984).

During the past 20 years, numerous researchers have examined the overall effects of psychological and psychiatric interventions on patients' physical and mental well-being and health care costs. To follow is a brief review of several research projects that have examined such relationships. Follette and Cummings in their classic study (1967), for example, compare the differences between MHT and control groups in the rates of medical visits and of hospitalization during the year preceding referral for psychotherapy and the subsequent five years. Of the 152 patients in the MHT group, 53% have records of one psychiatric consultation only, 27% with two to eight sessions, and 20% with nine or more sessions. A reduction of 62% in the rate of medical consultations is reported over the period of five years following psychiatric referral and a 68% reduction in hospitalization rate; the comparable figure for the control group (no psychiatric referral) is a 13% increase in the rate of medical consultations and a 6% decrease in the hospitalization rate. Even when psychotherapy visits are included in the rate of medical consultations, patients still show a 54% reduction in health

care utilization. Of special interest is the finding that the group with only one consultation visit not only has a significant decline in medical use but also has records of no additional psychotherapy during the 5-year follow-up to maintain the lower level of use.

Results of a study by Schlesinger et al. (1983) indicate clearly that an increasing number of outpatient MHT sessions (greater than three visits), beginning within one year of initial diagnosis, is associated with reduced charges for medical services by the third year following the diagnosis. This cost-offset effect can be seen both when the MHT's group charges are compared with those of a comparison group and when they are compared with a third-year charge. With inpatient charges for the comparison group accounting for over 75% of the total charges for inpatient and outpatient medical care, over 13% for outpatient medical visits, 6% for outpatient x-rays and laboratory tests, and 4% for outpatient prescriptions, significant savings in medical costs must be garnered from inpatient charges. In the third year following the initial diagnosis, the charges for medical services of the group having at least seven MHT visits are on the average \$371 lower than those of the comparison group. During the four years of the study, the medical charges for this group average \$175 less than those of the comparison group. If the duration of the MHT is under 21 visits, the savings in charges for medical care exceed the total cost of the MHT in three years. If this trend should continue, savings of over \$300 per year might be realized by this group. Because an increasing number of MHT visits is associated with larger decreases in charges for medical care, it is likely that the cumulative savings in medical charges in subsequent years would be sufficient to defray the cost of more than 21 MHT visits.

Results of Levitan and Kornfeld's research (1981) support the hypothesis that a liaison psychiatrist can improve clinical outcome and reduce the costs of medical care by favorably influencing the postoperative course of patients. The observed decrease in duration of hospital stays is attributable to the interventions of the liaison psychiatrist, whose first session is scheduled no later than 72 hours after admission. Significantly more of the psychiatrist's patients, as contrasted with members of a control group, are shown to have returned home rather than to another health-related

institution. Estimates are that the work of one liaison psychiatrist can save hundreds of thousands of dollars (1981 money) for as few as 24 hospitalized patients. These savings represent significantly fewer days of hospitalization and the lower costs of home care rather than care in a nursing home.

In an extensive review of 58 controlled studies and retrospective analysis of health insurance claims data, Mumford et al. (1984) provide supporting evidence of a general cost-offset effect following outpatient psychotherapy. The clearest cost-offset effect appears primarily in the reduction of inpatient rather than outpatient costs. Inpatient charges account for 75% of total medical charges, and substantial savings would have to result from a reduced hospitalization rate.

In a study of patients who were either referred for "evaluation only" ($n = 205$) or "evaluation and treatment" ($n = 103$) at a medical psychology outpatient clinic, Rosen and Wiens (1979) report results of within-group changes. From the 12-month pre- to 12-month postreferral period, patients in the "evaluation only" group demonstrate the most consistent reduction, with declines noted in medical outpatient visits, pharmaceutical prescriptions, emergency room visits, and diagnostic services. Patients in the "evaluation and treatment" group engage in significantly less use of medical outpatient visits and pharmaceutical prescriptions. No reliable differences are noted for either of the two control groups who did not receive psychological services.

Results of an investigation in an Army outpatient health care setting reveal a significant reduction in the use of medical services following a brief psychological intervention (Longobardi, 1981). Using a short-term, rational-emotive type of therapy that also involved behavioral therapy principles, patients' medical service utilization is compared during six months before and six months after the initiation of therapy. The number of outpatient visits following the first treatment session is observed to be significantly lower than that for any other group. In fact, the almost 64% reduction is very high given the short time span for follow-up; the control group's use of medical services reveals a slight, but nonsignificant increase. No other comparisons are significantly different.

Results of another study indicate that disabling chronic pain states, which are caused by industrial accidents, respond to intensive multimodal treatment techniques. Comprehensive, maximal therapeutic treatment at a special pain and stress treatment center has restored 19 patients, who previously had been treated unsuccessfully by conventional medical therapies, to their full premorbid vocational potentials. At the end of six months, all 19 workers are reported to be on the job. Costs of treatment amounted to 2% of the company's projected disability costs with savings to the company of \$1.8 million (Podobnikar & Mackintosh, 1981).

Heinrich and his associates (1985) also examine the effectiveness of different treatment techniques: physical and behavior therapy for chronic low back pain. Their findings indicate that physical therapy improves the physical outcomes although at the end of the six-month follow-up, the two therapy groups do not differ significantly on these variables. Slight psychosocial improvements are noted in the behavior therapy group. The authors conclude that both therapy techniques have a unique impact on chronic low back pain which suggests that the two approaches should be integrated to provide a potentially more enduring effect.

Blue Cross claims records of 136 subjects who utilized outpatient psychiatric benefits over a 48-month period indicate that overall medical or surgical utilization is reduced for subscribers who use the outpatient psychotherapy benefits (Jameson, Shuman, & Young, 1978). Further, this phenomenon of reduced medical or surgical utilization with exposure to outpatient psychotherapy is found to be independent of age, sex, or employment level (salary versus hourly employee groups); the cost per patient per month for this small subgroup yields a reduction of 30% in medical and surgical utilization.

After reviewing the results of those studies, it can be concluded that a reduction in the rate of utilization of both outpatient and inpatient medical services can be achieved by psychological and psychiatric interventions and by the adoption of a biopsychosocial approach to illness. Further development of consultation-liaison MHT should be encouraged to promote awareness of the influence of psychosocial factors on physical illness and their early

management as both clinically important and cost effective. The widespread evidence in these studies of a reduced rate of increase of medical expense following MHT argues for the inseparability of mind and body in health care, and it also points up the likelihood that MHT may improve patients' ability to stay healthy enough to avoid hospital admission for a physical disorder (Mumford *et al.*, 1984). The effects of such treatment suggest that patients will adhere more closely to medical advice and perhaps will engage in more rational behavior, including healthier life styles (Schlesinger *et al.*, 1983). Improved cooperation with medical advice would reduce emergencies and serious complications, especially for individuals with chronic conditions.

To conclude, the referral for psychological services is an intervention that seems to be associated with increased emotional well-being and a dramatic reduction of medical problems and use of medical facilities. Many patients who seek medical care are concomitantly experiencing psychological distress. Moreover, most health care providers underrate the extent of their patients' psychological distress (Moffic & Paykel, 1975; Thompson *et al.*, 1983). It would seem economically advantageous for health centers interested in preventive health care and efficient use of medical services to employ the services of medical psychologists in an active manner. Psychologists are integral to a health care system that values maximum health maintenance and efficient operation. The available data showing the reduction of presenting medical problems with appropriate psychological assistance and the models of psychologist-physician partnerships in comprehensive health care bode well for the development of the psychologist as a (physical) health professional (Rosen & Wiens, 1979).

One form of intervention that has been shown to be ineffective in restoring injured or ill workers to their full potential is that of the settlement award. In a follow-up survey of 106 settled workers' compensation cases, all of which involve some degree of psychiatric impairment, the results show a high prevalence of cases in which the settlement correlated with no improvement in the patient's subjective feelings of well-being and no improvement in employment status. A large percentage of cases consists of individuals who continue to operate at a less adaptive level of functioning, as judged by the evaluating clinician (Sprehe, 1984). Thus, settlement of

workers' compensation cases, at least in those cases where there is psychiatric impairment significant enough to be included in the disability rating and in the settlement, does not usually correlate with any sort of improvement in the individual and, more important, does not appear to lessen or stop the tragic downward life course of these individuals. Mere awarding of a lump sum of money does not improve their employability at all. According to Cherkas (1984), patients are really not interested in the money that can be obtained from a settlement as much as they are desirous of being restored to their full potential--and a return to a full salary. Of interest to note is the fact that in Florida, no mandatory cash settlements in any workers' compensation cases are allowed, although insurance carriers may offer one (Sprehe, 1984).

Effects of Case Management Intervention

The studies examined thus far have attempted to provide a concise picture not only of the characteristics of occupationally ill or injured workers but also of their milieu, the principal participants designated to meet their health care needs and manage their cases, and the options available for cost containment. In order to bring about the return of injured or ill workers to their jobs and a restoration to their full potential, a cohesive process that incorporates all of the elements described in this review is required. Such a system would be based on a series of algorithms, which is driven by the importance of timeliness in delivering health care, returning the worker to his or her job, and initiating a rehabilitation program. The use of algorithms in health care is not new, but most existing algorithms are clinical rather than managerial.

Automated systems have been created to provide the management processes needed not only for case management but also for cost containment endeavors (Grimm, Shimon, Harlan, & Estes, 1975; Komaroff, 1982; National Center for Health Services Research, 1977; Orient, Kettel, Sox, Sox, Woods, Brown, & Lebowitz, 1983). In the early 1970s, the scientific literature reveals the beginning of the publication of studies that describe the design and implementation of specific protocols or clinical algorithms. Since then, numerous algorithms have been created, including those for such conditions as acute respiratory illnesses (Christensen-Szalanski, Diehr, Wood, & Tompkins,

1982; Dixon, 1985; Greenfield, Bragg, McCraith, & Blackburn, 1974; Komaroff, Savayer, Flateley, & Browne, 1976; National Center for Health Statistics, 1982; Tompkins, Burnes, & Cable, 1977; Tompkins, Wood, Wolcott, & Walsh, 1977), diabetes mellitus and hypertension and related arteriosclerotic and hypertensive heart disease (Komaroff, Black, Flatley, Knopp, Reiffen, & Sherman, 1974; Komaroff, Flatley, Browne, Sherman, Fineberg, & Knopp, 1976), and low back pain (Greenfield, Anderson, Winickoff, Morgan, & Komaroff, 1975). Other studies have examined the efficacy of algorithms in the treatment and management of as many as 44 different disorders (Charles, Stimson, Maurier, & Good, 1974; Sox, Sox, & Tompkins, 1973; Vickery, Liang, Collis, Larsen, Morgan, & Folland, 1975; Wood, Tompkins, & Wolcott, 1980).

As stated by those researchers, one of the most important purposes of implementing such protocols is to ensure safe, efficient, and effective health care. The criteria that assess the quality of medical care include illness outcome, measures of patient and physician satisfaction, and evaluations of compliance with algorithm logic. Another crucial objective of those studies is to examine whether or not the use of algorithms reduces the high costs of medical care and compensation. Comparisons between pre- and postalgorithm time periods and between experimental and control groups are conducted for costs attributable to diagnostic tests, physicians' fees, and other medical care expenditures. In almost all of the studies, the costs resulting from the use of an algorithm process are determined to be significantly lower than those reported during the baseline period or from the control samples. Such results clearly demonstrate the cost containment effectiveness of clinical algorithms; however, research on the efficacy of operational and environmental protocols has not been widely reported.

On the basis of that brief review, the use of algorithms for health care delivery and cost containment is determined to be highly effective. The most logical follow-on is to incorporate the return-to-work plan and case management into an algorithm configuration, one that is specifically designed for occupationally sustained illnesses and injuries. Such a system has been developed by the United States Public Health Service: the Occupational Illness and Injury Contingency Management Process (OPTICOMAP). The key elements of OPTICOMAP are immediate and high quality medical care, case

management, and a workable return-to-work plan. The biopsychosocial approach forms the basis for OPTICOMAP; meeting the biopsychosocial needs of the worker, which includes MHT if deemed necessary, is implicit in the process.

OPTICOMAP is designed to incorporate the roles of the six principal participants into a highly effective and cohesive alliance that will ensure a quick return to work and a restoration of the occupationally ill or injured individual to his or her full potential. The six roles in OPTICOMAP are subsumed under the operational, clinical, and environmental tracks, which include, respectively, (1) the line supervisor or employer, care coordinator-claims facilitator, and medical consultant; (2) the primary care provider and attending case managing physician; and (3) the responsible environmental manager. Of the six, the line supervisor, attending case managing physician, and care coordinator-claims facilitator typically work together in directly helping the occupationally injured or ill worker return to work.

The implementation of OPTICOMAP is expected not only to reduce the high costs of medical care and disability, but also to return high proportions of injured or ill employees to work--all within a reasonable period of time. With the six players working together to provide care, guidance, and support for the occupationally injured or ill employee during the healing process, the cost containment case for case management will no longer be a proposal designed to help both the employee and the employer, but will become a reality and a necessity in cost-conscious and humane organizations.

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